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<110> Reed, John C. Godzik, Adam Pawlowski, Krzysztof Fiorentino, Loredana Lee, Sug Hyung Roth, Wilfred Stenner-Liewen, Frank <120> Novel Death Domain Proteins <130> P-LJ 5037 <150> 60/301,889 <151> 2001-06-29 <150> 09/715,893 <151> 2000-11-17 <160> 62 <170> FastSEQ for Windows Version 4.0 <210> 1 <211> 210 <212> DNA <213> Homo sapien <220> <221> CDS <222> (1) ... (210) <400> 1 ctt tgg gga aga acc act ctg aaa aga gaa gat aaa agc ccg att gcc Leu Trp Gly Arg Thr Thr Leu Lys Arg Glu Asp Lys Ser Pro Ile Ala ccc gag gaa tta gca ctt gtt cac aac ttg agg aaa atg atg aaa aat Pro Glu Glu Leu Ala Leu Val His Asn Leu Arg Lys Met Met Lys Asn 20 gat tgg cat gga ggc gcc att gtg tcg gct ttg agc cag act ggg tct Asp Trp His Gly Gly Ala Ile Val Ser Ala Leu Ser Gln Thr Gly Ser 35 40 ctc ttt aag ccc cgg aaa gcc tat ctg ccc cag gag ttg ctg gga aag 192 Leu Phe Lys Pro Arg Lys Ala Tyr Leu Pro Gln Glu Leu Leu Gly Lys 50 55 210 gaa gga ttt gat gcc ctg Glu Gly Phe Asp Ala Leu 65

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aaa cag gac tgg ctg ata cta cat att cca gat gct cat ctt tgg gtg
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Lys Gln Asp Trp Leu Ile Leu His Ile Pro Asp Ala His Leu Trp Val
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Lys Asn Cys Arg Asp Leu Leu Gln Ser Ser Tyr Asn Lys Gln Arg Phe
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                          55
gat caa cct tta gag gct tca acc tgg ctg aag aat ttc aaa act aca
                                                                    240
Asp Gln Pro Leu Glu Ala Ser Thr Trp Leu Lys Asn Phe Lys Thr Thr
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                      70
aat gag cgc ttc ctg aac cag ata aaa gtt caa gag aag tat gtc tgg
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Asn Glu Arg Phe Leu Asn Gln Ile Lys Val Gln Glu Lys Tyr Val Trp
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Lys Asn Cys Arg Asp Leu Leu Gln Ser Ser Tyr Asn Lys Gln Arg Phe
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Asp Gln Pro Leu Glu Ala Ser Thr Trp Leu Lys Asn Phe Lys Thr Thr
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Thr Tyr Val Arg Cys Leu Asn Val Gly Leu Ile Arg Lys Leu Ser Asp
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                                                                    96
Phe Ile Asp Pro Gln Glu Gly Trp Lys Lys Leu Ala Val Ala Ile Lys
aaa cca tct ggt gat gat aga tac aat cag ttt cac ata agg aga ttt
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Lys Pro Ser Gly Asp Asp Arg Tyr Asn Gln Phe His Ile Arg Arg Phe
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                      70
 65
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atc caa aat gaa ttt ttt gct cct gcg agt ctt ttg ctc cca gat gct
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Lys Pro Ser Gly Asp Asp Arg Tyr Asn Gln Phe His Ile Arg Arg Phe
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Glu Ala Leu Leu Gln Thr Gly Lys Ser Pro Thr Ser Glu Leu Leu Phe
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Asp Trp Gly Thr Thr Asn Cys Thr Val Gly Asp Leu Val Asp Leu Leu
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Arg Met Phe Glu Val Val Gly Gly Gln Leu Thr Glu Cys Glu Leu Glu
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              20 .
 ctc ctg gcc ttt ctg ctg gat gag gct cct ggc gcc gcc gga ggc tta
                                                                    144
 Leu Leu Ala Phe Leu Leu Asp Glu Ala Pro Gly Ala Ala Gly Gly Leu
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Gly Gln Cys Asp Glu Ser Asn Leu Arg Leu Leu Gly Gln Leu Leu Arg
gtg ctg gcc cgc cac gac ctg ctg ccg cac ctg gcg cgc aag cgg cgc
                                                                   288
Val Leu Ala Arg His Asp Leu Leu Pro His Leu Ala Arg Lys Arg Arg
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Arg Pro Val Ser Pro
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Ala Arg Ala Arg Ser Gly Leu Glu Leu Leu Glu Leu Glu Arg Arg
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Gly Gln Cys Asp Glu Ser Asn Leu Arg Leu Leu Gly Gln Leu Leu Arg
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 tta gag gct cat gag cct agt gaa gca gca aaa gcg aaa gta gct act
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 Leu Glu Ala His Glu Pro Ser Glu Ala Ala Lys Ala Lys Val Ala Thr
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Arq
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 1
                  5
                                      10
aag ggc tgg cag gag ctg gca ggc cac ctc ggc tac caa gct gag gct
                                                                    96
Lys Gly Trp Gln Glu Leu Ala Gly His Leu Gly Tyr Gln Ala Glu Ala
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              20
gtg gaa acc atg gcc tgt gac caa atg cca gcc tat acc ctg cta agg
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Val Glu Thr Met Ala Cys Asp Gln Met Pro Ala Tyr Thr Leu Leu Arg
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                Met Met Leu Lys Gly Ile Thr Arg Leu Ile Ser Arg
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 Arg Gln Ser Ile Ala Ala His Leu Asp Asn Gln Val Pro Val Glu Ser
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 ccg aga gct att tcc cgc acc aat gag aat gac ccg gcc aag cat ggg
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 Pro Arg Ala Ile Ser Arg Thr Asn Glu Asn Asp Pro Ala Lys His Gly
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 Asp Gln His Glu Gly Gln His Tyr Asn Ile Ser Pro Gln Asp Leu Glu
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65 70 75

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aca Thr																397
ctg Leu																445
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				tgt Cys 145												541
				tgg Trp												589
				cgc Arg												637
				act Thr												685
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				gtg Val 225	۷al					Thr						781
				. Gly										Ser	tct Ser	829
			Phe					Ala					Asn		ctt Leu	877
		Arg					Arg					Pro			ccc Pro	925
gag	gaa	tta	gca	a ctt	gtt	cac	aac	ttg	agg	g aaa	atg	atg	aaa	aat	gat	973

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ctg ttc cta agt aac gcg aac ccc tcg ctg ctg gag cgg cac tgt gcc 1261 Leu Phe Leu Ser Asn Ala Asn Pro Ser Leu Leu Glu Arg His Cys Ala 385 390 395
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Trp Val Lys Asn Cys Arg Asp Leu Leu Gln Ser Ser Tyr Asn Lys Gln
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Thr Thr Asn Glu Arg Phe Leu Asn Gln Ile Lys Val Gln Glu Lys Tyr
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Thr Leu Lys Arg Glu Asp Lys Ser Pro Ile Ala Pro Glu Glu Leu Ala
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                                          300
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Phe Glu Ser Cys Ile Gln Tyr Tyr Leu Glu Asn Asn Trp Leu Gln His
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gcg Ala	agt Ser	ctt Leu	ttg Leu 100	ctc Leu	cca Pro	gat Asp	gct Ala	gtt Val 105	ccc Pro	aaa Lys	act Thr	gct Ala	aat Asn 110	aca Thr	cta Leu	336
cct Pro	tct Ser	aaa Lys 115	gaa Glu	gct Ala	ata Ile	aca Thr	gtt Val 120	cag Gln	caa Gln	aaa Lys	cag Gln	atg Met 125	cct Pro	ttc Phe	tgt Cys	384
gac Asp	aaa Lys 130	Asp	agg Arg	aca Thr	ttg Leu	atg Met 135	aca Thr	cct Pro	gtg Val	cag Gln	aat Asn 140	ctt Leu	gaa Glu	caa Gln	agc Ser	432
tat Tyr 145	Met	cca Pro	cct Pro	gac Asp	tcc Ser 150	tca Ser	agt Ser	cca Pro	gaa Glu	aat Asn 155	aaa Lys	agt Ser	tta Leu	gaa Glu	gtt Val 160	480
agt Ser	gat Asp	aca Thr	cgt Arg	ttt Phe 165	His	agt Ser	ttt Phe	tca Ser	ttt Phe 170	Tyr	gaa Glu	ttg Leu	aag Lys	aat Asn 175		528
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gga Gly	gag Glu	gga Gly 195	r Gly	ttt Phe	gga Gly	gtt Val	gta Val 200	. Tyr	aaa Lys	ggc gly	tac Tyr	gta Val 205	Asr	aac Asn	aca Thr	624
act Thr	gtg Val	. Ala	gtg Val	g aag Lys	, aag Lys	ctt Leu 215	ı Ala	gca Ala	ato Met	g gtt Val	gac L Asp 220) Ile	act Thi	act Thr	gaa Glu	672
	ı Lei					e Ası					₃ Val				tgt Cys 240	720

caa Gln																768
gac Asp							tac Tyr									816
							act Thr 280									864
							gct Ala									912
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Glu	Lys	Phe	Ala 340	Gln	Thr	Val	atg Met	Thr 345	Ser	Arg	Ile	Val	Gly 350	Thr	Thr	1056
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Asp	Ile 370	Tyr	Ser	Phe	Gly	Val 375	Val	Leu	Leu	Glu	Ile 380	Ile	Thr	Gly	ctt Leu	1152
Pro 385	Ala	Val	Asp	Glu	His 390	Arg	Glu	Pro	Gln	Leu 395	Leu	Leu	Asp	Ile	aaa Lys 400	1200
Glu	Glu	. Ile	Glu	. Asp 405	Glu	Glu	Lys	Thr	1le 410	Glu	Asp	Tyr	Ile	Asp 415		1248
Lys	Met	. Asn	420	Ala	. Asp	Ser	Thr	Ser 425	Val	Glu	. Ala	. Met	Tyr 430	Ser	gtt Val	1296
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Asn Gln Phe His Ile Arg Arg Phe Glu Ala Leu Leu Gln Thr Gly Lys
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Ser Pro Thr Ser Glu Leu Leu Phe Asp Trp Gly Thr Thr Asn Cys Thr
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                    70
Val Gly Asp Leu Val Asp Leu Leu Ile Gln Asn Glu Phe Phe Ala Pro
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Ala Ser Leu Leu Leu Pro Asp Ala Val Pro Lys Thr Ala Asn Thr Leu
                                105
Pro Ser Lys Glu Ala Ile Thr Val Gln Gln Lys Gln Met Pro Phe Cys
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        115
Asp Lys Asp Arg Thr Leu Met Thr Pro Val Gln Asn Leu Glu Gln Ser
                        135
                                            140
Tyr Met Pro Pro Asp Ser Ser Ser Pro Glu Asn Lys Ser Leu Glu Val
                                         155
                    150
Ser Asp Thr Arg Phe His Ser Phe Ser Phe Tyr Glu Leu Lys Asn Val
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Thr Asn Asn Phe Asp Glu Arg Pro Ile Ser Val Gly Gly Asn Lys Met
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Gly Glu Gly Gly Phe Gly Val Val Tyr Lys Gly Tyr Val Asn Asn Thr
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Thr Val Ala Val Lys Lys Leu Ala Ala Met Val Asp Ile Thr Thr Glu
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Glu Leu Lys Gln Gln Phe Asp Gln Glu Ile Lys Val Met Ala Lys Cys
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Gln His Glu Asn Leu Val Glu Leu Leu Gly Phe Ser Ser Asp Gly Asp
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Asp Leu Cys Leu Val Tyr Val Tyr Met Pro Asn Gly Ser Leu Leu Asp
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Arg Leu Ser Cys Leu Asp Gly Thr Pro Pro Leu Ser Trp His Met Arg
 Cys Lys Ile Ala Gln Gly Ala Ala Asn Gly Ile Asn Phe Leu His Glu
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 Asn His His Ile His Arg Asp Ile Lys Ser Ala Asn Ile Leu Leu Asp
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 Glu Ala Phe Thr Ala Lys Ile Ser Asp Phe Gly Leu Ala Arg Ala Ser
                 325
 Glu Lys Phe Ala Gln Thr Val Met Thr Ser Arg Ile Val Gly Thr Thr
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 Ala Tyr Met Ala Pro Glu Ala Leu Arg Gly Glu Ile Thr Pro Lys Ser
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 Asp Ile Tyr Ser Phe Gly Val Val Leu Leu Glu Ile Ile Thr Gly Leu
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370
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Pro Ala Val Asp Glu His Arg Glu Pro Gln Leu Leu Leu Asp Ile Lys
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Glu Glu Ile Glu Asp Glu Glu Lys Thr Ile Glu Asp Tyr Ile Asp Lys
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Lys Met Asn Asp Ala Asp Ser Thr Ser Val Glu Ala Met Tyr Ser Val
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                                  Met Ala Leu Ser Gly Ser Thr Pro
gcc ccg tgc tgg gag gag gat gag tgc ctg gac tac tac ggg atg ctg
Ala Pro Cys Trp Glu Glu Asp Glu Cys Leu Asp Tyr Tyr Gly Met Leu
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tcg ctt cac cgt atg ttc gag gtg gtg ggc ggg caa ctg acc gag tgc
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Ser Leu His Arg Met Phe Glu Val Val Gly Gly Gln Leu Thr Glu Cys
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gag ctg gag ctc ctg gcc ttt ctg ctg gat gag gct cct ggc gcc gcc
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Glu Leu Glu Leu Leu Ala Phe Leu Leu Asp Glu Ala Pro Gly Ala Ala
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gga ggc tta gcc cgg gcc cgc agc ggc cta gag ctc ctg ctg gag ctg
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Gly Gly Leu Ala Arg Ala Arg Ser Gly Leu Glu Leu Leu Glu Leu
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Glu Arg Arg Gly Gln Cys Asp Glu Ser Asn Leu Arg Leu Leu Gly Gln
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                             80
ctc ctq cqc qtq ctq qcc cqc cac qac ctq ctq ccq cac ctq qcq cqc
Leu Leu Arg Val Leu Ala Arg His Asp Leu Leu Pro His Leu Ala Arg
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aag d Lys 1																450
agc f																498
agc a																546
cca a																594
aga Arg				-		-										642
Pro . 185	_	_				_					_	-				690
cgg (738
gtg Val																786
gjà aaa																834
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gac Asp 265	Tyr	Leu	Ser	Gly	Ala 270	Leu	Leu	Gln	Ala	Leu 275	Arg	Gly	Val	Phe	Leu 280	930
act Thr																978
gtc Val																1026
ctg Leu						999	cggc	gcc	cgac	agag	gc c	tcct	gatc	С		1074

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<213> Homo sapien

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				245					250					255		
Ser	Tyr	Leu	Asp 260	Ala	Phe	Trp	Gly	Asp 265	Tyr	Leu	Ser	Gly	Ala 270	Leu	Leu	
		275					280		Glu			285				
	290					295			Ser		300			Asp	Tyr	
Glu 305	Ala	Gly	Arg	Arg	Arg 310	Leu	Leu	Leu	Met	Glu 315	Glu	Glu	Gly			
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	L> CI 2> (1		. (693	3)												
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1				5					10					15		
			His					Thr	ttt Phe		_		Trp	_	_	96
~~~	a-a	a++	20		~~~	~~~	***	25					30	<b>L</b>	<b>.</b>	7.4.4
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tta	cat		aaa	acc	ttt	cct.		tat	tta	tet	aca		cat	agt	cat	192
									Leu					_	_	1,2
tgc	gat	gat	tta	gag	qcq		aaq	tta	ttg	tta		aac	tta	ato	gat	240
									Leu							
gaa	gag	aac	ggt	tac	cct	aat	cat	att	gat	ttg	tgg	aag	cag	ttt	gtg	288
									Asp 90							
ttt	gct	cta	gga	gtt	act	cca	gaa	gag	tta	gag	gct	cat	gag	cct	agt	336
Phe	Ala	Leu	Gly 100	Val	Thr	Pro	Glu	Glu 105	Leu	Glu	Ala	His	Glu 110	Pro	Ser	
									ttc							384
Glu	Ala	Ala 115	Lys	Ala	Lys	Val	Ala 120	Thr	Phe	Met	Arg	Trp 125	Cys	Thr	Gly	
									ttg							432
Asp	Ser	Leu	Ala	Ala	GŢĀ	Val	Ala	Ala	Leu	Tyr	Ser	Tyr	Glu	Ser	Gln	

130 135 140

		_		gct Ala												480
				cct Pro 165	-	_		_				_		_	_	528
	_			cat His		-										576
		-	_	gct Ala	_											624
				ggc Gly							_					672
_	_	_		caa Gln			taa									696
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Ala Asp Val Arg His Ala Arg Glu Glu Lys Ala Leu Ile Glu Met Leu
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Leu Lys Asp Asp Ala Asp Lys Val Leu Glu Ala Ser Gln Glu Val Thr
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Gln Ser Leu Tyr Gly Phe Leu Asp Ser Phe Leu Asp Pro Arg Thr Cys
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Cys Ser Cys His Gln Ser Tyr
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cag ggg cag gac ggg gac agg gaa gga atg tgg gta gga gct ggg gga
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Gln Gly Gln Asp Gly Asp Arg Glu Gly Met Trp Val Gly Ala Gly Gly
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gcc cta gcc ccc aat acc tcc tcc cta ttt ccc cct gag cct cca ggg
                                                                   144
Ala Leu Ala Pro Asn Thr Ser Ser Leu Phe Pro Pro Glu Pro Pro Gly
         35
                             40
ged teg age aad atd att eet gte tad tgt get etc eta get aca gtg
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Ala Ser Ser Asn Ile Ile Pro Val Tyr Cys Ala Leu Leu Ala Thr Val
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atc ctt ggt ctg ctg gcc tat gtg gcc ttc aaa tgc tgg cgc tca cat
                                                                   240
Ile Leu Gly Leu Leu Ala Tyr Val Ala Phe Lys Cys Trp Arg Ser His
aag caa agg caa cag ttg gct aaa gct cgg act gta gag cta ggg gac
                                                                   288
Lys Gln Arg Gln Gln Leu Ala Lys Ala Arg Thr Val Glu Leu Gly Asp
cct gac agg gac cag agg cgt ggt gac agc aac gtc ttc gtg gac tct
                                                                   336
Pro Asp Arg Asp Gln Arg Gly Asp Ser Asn Val Phe Val Asp Ser
            100
                                105
                                                     110
cet cet agt etg gag eee tgt att eee age eag gga eea eac eeg gae
                                                                   384
Pro Pro Ser Leu Glu Pro Cys Ile Pro Ser Gln Gly Pro His Pro Asp
        115
                            120
ctt ggc tgc cag ctt tac ctg cat att cca cag cag cag cag qag gaa
Leu Gly Cys Gln Leu Tyr Leu His Ile Pro Gln Gln Gln Gln Glu Glu
    130
                        135
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								gct Ala								528
								ctg Leu 185					_	_		576
								gtg Val								624
								gtt Val								672
	tcg Ser			tga												687
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Ala	Leu	Ala 35	Pro	Asn	Thr	Ser	Ser 40	Leu	Phe	Pro	Pro	Glu 45		Pro	Gly	
Ala	Ser 50	Ser	Asn	Ile	Ile	Pro 55	Val	Tyr	Cys	Ala	Leu 60	Leu	Ala	Thr	Val	
65		_			70	_		Ala		75	-	_			80	
				85				Ala	90					95	_	
Pro	Asp	Arq	Agn	Gln	Arg	Arg	Gly	Asp	Ser	Asn	Val	Phe	Val 110	Asp	Ser	
		,	100					105					110			
Pro	Pro	Ser 115	100 Leu	Glu	Pro		120	Pro			_	125	His		_	
Pro Leu	Pro Gly 130	Ser 115 Cys	100 Leu Gln	Glu Leu	Pro Tyr	Leu 135	120 His	Pro Ile	Pro	Gln	Gln 140	125 Gln	His Gln	Glu	Glu	
Pro Leu Val	Pro Gly 130	Ser 115 Cys	100 Leu Gln	Glu Leu	Pro Tyr Met	Leu 135	120 His	Pro	Pro	Gln Ala	Gln 140	125 Gln	His Gln	Glu	Glu Glu	
Pro Leu Val 145	Pro Gly 130 Gln	Ser 115 Cys Arg	100 Leu Gln Leu	Glu Leu Leu	Pro Tyr Met 150	Leu 135 Met	120 His Gly	Pro Ile Glu	Pro	Gln Ala 155	Gln 140 Lys	125 Gln Gly	His Gln Trp	Glu Gln	Glu Glu 160	
Pro Leu Val 145 Leu	Pro Gly 130 Gln Ala	Ser 115 Cys Arg Gly	100 Leu Gln Leu His	Glu Leu Leu Leu 165	Pro Tyr Met 150 Gly	Leu 135 Met Tyr	120 His Gly Gln	Pro Ile	Pro Pro Glu 170	Gln Ala 155 Ala	Gln 140 Lys Val	125 Gln Gly Glu	His Gln Trp Thr	Glu Gln Met 175	Glu Glu 160 Ala	

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Glu Gly Asn Arg Ala Thr Leu Arg Val Leu Glu Asp Ala Leu Ala Ala
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Ile Gly Arg Glu Asp Val Val Gln Val Leu Ser Ser Pro Ala Glu Ser
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Ser Ser Val Val
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caa aat aag cat atg cta gaa cac aca ttt tat gtg aaa tgg tcg aag
Gln Asn Lys His Met Leu Glu His Thr Phe Tyr Val Lys Trp Ser Lys
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                                 25
ggg gag ctt act aaa gag caa tta cag gcg tat gcc aaa gac tat tat
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Gly Glu Leu Thr Lys Glu Gln Leu Gln Ala Tyr Ala Lys Asp Tyr Tyr
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tta cat atc aaa gcc ttt cct aaa tat tta tct gcg att cat agt cgt
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Leu His Ile Lys Ala Phe Pro Lys Tyr Leu Ser Ala Ile His Ser Arg
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tgc gat gat tta gag gcg cgt aag tta ttg tta gat aac ttg atg gat
                                                                    240
Cys Asp Asp Leu Glu Ala Arg Lys Leu Leu Leu Asp Asn Leu Met Asp
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                     70
                                          75
gaa gag aac ggt tac cct aat cat att gat ttg tgg aag cag ttt gtg
Glu Glu Asn Gly Tyr Pro Asn His Ile Asp Leu Trp Lys Gln Phe Val
                 85
                                      90
ttt gct cta gga gtt act cca gaa gag tta gag gct cat gag cct agt
                                                                   336
Phe Ala Leu Gly Val Thr Pro Glu Glu Leu Glu Ala His Glu Pro Ser
            100
gaa gca gca aaa gcg aaa gta gct act ttc atg cgg tgg tgt aca gga
                                                                   384
Glu Ala Ala Lys Ala Lys Val Ala Thr Phe Met Arg Trp Cys Thr Gly
        115
gat tet tta get gea gga gtg get get ttg tat tet tat gag agt caa
                                                                   432
Asp Ser Leu Ala Ala Gly Val Ala Ala Leu Tyr Ser Tyr Glu Ser Gln
    130
                        135
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														tac Tyr		480
												_		gaa Glu 175	_	528
					-	_	_	-						atg Met		576
														gta Val		624
														act Thr		672
	agt Ser						taa									696
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			20					25					30	Ser	_	
		35					Leu 40	Gln	Ala	Tyr	Ala		Asp	Tyr	Tyr	
	50	тте	цув	Ala			T	П	T	<b>a</b>	77 -	45	TT-1	0	7	
UVS		Asn	T.en			55					60	Ile		Ser	_	
65	Asp			Glu	Ala 70	55 Arg	Lys	Leu	Leu	Leu 75	60 Asp	Ile Asn	Leu	Met	Asp 80	
65 Glu	Asp Glu	Asn	Gly	Glu Tyr 85	Ala 70 Pro	55 Arg Asn	Lys His	Leu Ile	Leu Asp 90	Leu 75 Leu	60 Asp Trp	Ile Asn Lys	Leu Gln		Asp 80 Val	
65 Glu Phe	Asp Glu Ala	Asn Leu	Gly Gly 100	Glu Tyr 85 Val	Ala 70 Pro Thr	55 Arg Asn Pro	Lys His Glu	Leu Ile Glu 105	Leu Asp 90 Leu	Leu 75 Leu Glu	60 Asp Trp Ala	Ile Asn Lys His	Leu Gln Glu 110	Met Phe 95	Asp 80 Val Ser	
65 Glu Phe Glu	Asp Glu Ala Ala Ser	Asn Leu Ala 115	Gly Gly 100 Lys	Glu Tyr 85 Val Ala	Ala 70 Pro Thr	55 Arg Asn Pro Val Val	Lys His Glu Ala 120	Leu Ile Glu 105 Thr	Leu Asp 90 Leu Phe	Leu 75 Leu Glu Met	60 Asp Trp Ala Arg Ser	Ile Asn Lys His Trp 125	Leu Gln Glu 110 Cys	Met Phe 95 Pro	Asp 80 Val Ser Gly	
65 Glu Phe Glu Asp	Asp Glu Ala Ala Ser 130	Asn Leu Ala 115 Leu	Gly Gly 100 Lys Ala	Glu Tyr 85 Val Ala Ala	Ala 70 Pro Thr Lys Gly Arg	55 Arg Asn Pro Val Val 135	Lys His Glu Ala 120 Ala	Leu Ile Glu 105 Thr	Leu Asp 90 Leu Phe Leu	Leu 75 Leu Glu Met Tyr	60 Asp Trp Ala Arg Ser 140	Ile Asn Lys His Trp 125 Tyr	Leu Gln Glu 110 Cys Glu	Met Phe 95 Pro	Asp 80 Val Ser Gly Gln	
65 Glu Phe Glu Asp Ile 145	Asp Glu Ala Ala Ser 130 Pro	Asn Leu Ala 115 Leu Arg	Gly 100 Lys Ala Ile	Glu Tyr 85 Val Ala Ala Ala Pro	Ala 70 Pro Thr Lys Gly Arg 150	Asn Pro Val Val 135 Glu	Lys His Glu Ala 120 Ala Lys	Leu Ile Glu 105 Thr Ala Ile	Leu Asp 90 Leu Phe Leu Arg	Leu 75 Leu Glu Met Tyr Gly 155	60 Asp Trp Ala Arg Ser 140 Leu	Ile Asn Lys His Trp 125 Tyr	Leu Gln Glu 110 Cys Glu Glu	Met Phe 95 Pro Thr Ser Tyr Glu	Asp 80 Val Ser Gly Gln Phe 160	
Glu Phe Glu Asp Ile 145 Gly	Asp Glu Ala Ala Ser 130 Pro	Asn Leu Ala 115 Leu Arg Ser	Gly 100 Lys Ala Ile Asn	Glu Tyr 85 Val Ala Ala Ala Pro 165	Ala 70 Pro Thr Lys Gly Arg 150 Glu	Asn Pro Val Val 135 Glu Asp	Lys His Glu Ala 120 Ala Lys Tyr	Leu Ile Glu 105 Thr Ala Ile Ala	Leu Asp 90 Leu Phe Leu Arg Tyr 170	Leu 75 Leu Glu Met Tyr Gly 155 Phe	60 Asp Trp Ala Arg Ser 140 Leu	Ile Asn Lys His Trp 125 Tyr Thr	Leu Gln Glu 110 Cys Glu Glu His	Met Phe 95 Pro Thr Ser Tyr	Asp 80 Val Ser Gly Gln Phe 160 Glu	

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Cys Ser Cys His Gln Ser Tyr
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                                                                   96
Gly Leu Ile Arg Lys Leu Ser Asp Phe Ile Asp Pro Gln Glu Gly Trp
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aag aag tta gct gta gct att aaa aaa cca tct ggt gat gat aga tac
Lys Lys Leu Ala Val Ala Ile Lys Lys Pro Ser Gly Asp Asp Arg Tyr
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aat cag ttt cac ata aga tgc tgt tcc caa aac taatacacta ccttctaaag 197
Asn Gln Phe His Ile Arg Cys Cys Ser Gln Asn
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aagctataac agtt
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gct gta gct att aaa aaa cca tct ggt gat gat aga tac aat cag ttt 202 Ala Val Ala Ile Lys Lys Pro Ser Gly Asp Asp Arg Tyr Asn Gln Phe 40 45 50
cac ata agg aga ttt gaa gca tta ctt caa act gga aaa agt ccc act 250 His Ile Arg Arg Phe Glu Ala Leu Leu Gln Thr Gly Lys Ser Pro Thr 55 60 65
tct gaa tta ctg ttt gac tgg ggc acc aca aat tgc aca gtt ggt gat 298 Ser Glu Leu Leu Phe Asp Trp Gly Thr Thr Asn Cys Thr Val Gly Asp 70 75 80
ctt gtg gat ctt ttg atc caa aat gaa ttt ttt gct cct gcg agt ctt 346 Leu Val Asp Leu Leu Ile Gln Asn Glu Phe Phe Ala Pro Ala Ser Leu 85 90 95
ttg ctc cca gat gct gtt ccc aaa act gct aat aca cta cct tct aaa 394 Leu Leu Pro Asp Ala Val Pro Lys Thr Ala Asn Thr Leu Pro Ser Lys 100 105 110 115
gaa gct ata aca gtt cag caa aaa cag atg cct ttc tgt gac aaa gac 442 Glu Ala Ile Thr Val Gln Gln Lys Gln Met Pro Phe Cys Asp Lys Asp 120 125 130
agg aca ttg atg aca cct gtg cag aat ctt gaa caa agc tat atg cca 490 Arg Thr Leu Met Thr Pro Val Gln Asn Leu Glu Gln Ser Tyr Met Pro 135 140 145
cct gac tcc tca agt cca gaa aat aaa agt tta gaa gtt agt gat aca 538 Pro Asp Ser Ser Ser Pro Glu Asn Lys Ser Leu Glu Val Ser Asp Thr 150 155 160
cgt ttt cac agt ttt tca ttt tat gaa ttg aag aat gtc aca aat aac 586 Arg Phe His Ser Phe Ser Phe Tyr Glu Leu Lys Asn Val Thr Asn Asn 165 170 175

ttt Phe 180	gat Asp	gaa Glu	cga Arg	ccc Pro	att Ile 185	tct Ser	gtt Val	ggt Gly	ggt Gly	aat Asn 190	aaa Lys	atg Met	gga Gly	gag Glu	gga Gly 195	634
gga Gly	ttt Phe	gga Gly	gtt Val	gta Val 200	tat Tyr	aaa Lys	ggc Gly	tac Tyr	gta Val 205	aat Asn	aac Asn	aca Thr	act Thr	gtg Val 210	gca Ala	682
										act Thr						730
cag Gln	cag Gln	ttt Phe 230	gat Asp	caa Gln	gaa Glu	ata Ile	aaa Lys 235	gta Val	atg Met	gca Ala	aag Lys	tgt Cys 240	caa Gln	cat His	gaa Glu	778
aac Asn	tta Leu 245	gta Val	gaa Glu	cta Leu	ctt Leu	ggt Gly 250	ttc Phe	tca Ser	agt Ser	gat Asp	gga Gly 255	gat Asp	gac Asp	ctc Leu	tgc Cys	826
tta Leu 260	gta Val	tat Tyr	gtt Val	tac Tyr	atg Met 265	cct Pro	aat Asn	ggt Gly	tca Ser	ttg Leu 270	cta Leu	gac Asp	aga Arg	ctc Leu	tct Ser 275	874
tgc Cys	ttg Leu	gat Asp	ggt Gly	act Thr 280	cca Pro	cca Pro	ctt Leu	tct Ser	tgg Trp 285	cac His	atg Met	aga Arg	tgc Cys	aag Lys 290	att Ile	922
gct Ala	cag Gln	ggt Gly	gca Ala 295	gct Ala	aat Asn	ggc Gly	atc Ile	aat Asn 300	ttt Phe	cta Leu	cat His	gaa Glu	aat Asn 305	cat His	cat His	970
										tta Leu						1018
act Thr	gct Ala 325	aaa Lys	ata Ile	tct Ser	gac Asp	ttt Phe 330	ggc Gly	ctt Leu	gca Ala	cgg Arg	gct Ala 335	tct Ser	gag Glu	aag Lys	ttt Phe	1066
gcc Ala 340	cag Gln	aca Thr	gtc Val	atg Met	act Thr 345	agc Ser	aga Arg	att Ile	gtg Val	gga Gly 350	aca Thr	aca Thr	gct Ala	tat Tyr	atg Met 355	1114
gca Ala	cca Pro	gaa Glu	gct Ala	ttg Leu 360	cgt Arg	gga Gly	gaa Glu	ata Ile	aca Thr 365	ccc Pro	aaa Lys	tct Ser	gat Asp	att Ile 370	tac Tyr	1162
agc Ser	ttt Phe	ggt Gly	gtg Val 375	gtt Val	tta Leu	cta Leu	gaa Glu	ata Ile 380	ata Ile	act Thr	gga Gly	ctt Leu	cca Pro 385	gct Ala	gtg Val	1210
gat Asp	gaa Glu	cac His 390	cgt Arg	gaa Glu	cct Pro	cag Gln	tta Leu 395	ttg Leu	cta Leu	gat Asp	att Ile	aaa Lys 400	gaa Glu	gaa Glu	att Ile	1258

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gaa gat gaa gaa aag aca att gaa gat tat att gat aaa aag atg aat
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Glu Asp Glu Glu Lys Thr Ile Glu Asp Tyr Ile Asp Lys Lys Met Asn
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gat gct gat tcc act tca gtt gaa gct atg tac tct ggt gct agc caa
                                                                   1354
Asp Ala Asp Ser Thr Ser Val Glu Ala Met Tyr Ser Gly Ala Ser Gln
420
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                                         430
tgt cgg cat gaa aag aaa aat aag agc cca gac att aag aag gtt cac
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Cys Arg His Glu Lys Lys Asn Lys Ser Pro Asp Ile Lys Lys Val His
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                                                         450
cag ctg ctg caa gag atg aca gct tct taaaacttta ttgaaaaaga
                                                                   1449
Gln Leu Leu Gln Glu Met Thr Ala Ser
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ctcttgactt tttatataca cctatctcaa ccattttttt aactgatttt tttcctaaat 1509
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Gly Leu Ile Arg Lys Leu Ser Asp Phe Ile Asp Pro Gln Glu Gly Trp
Lys Lys Leu Ala Val Ala Ile Lys Lys Pro Ser Gly Asp Asp Arg Tyr
                            40
Asn Gln Phe His Ile Arg Arg Phe Glu Ala Leu Leu Gln Thr Gly Lys
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Ser Pro Thr Ser Glu Leu Leu Phe Asp Trp Gly Thr Thr Asn Cys Thr
                                       75
Val Gly Asp Leu Val Asp Leu Leu Ile Gln Asn Glu Phe Phe Ala Pro
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Ala Ser Leu Leu Pro Asp Ala Val Pro Lys Thr Ala Asn Thr Leu
                                105
Pro Ser Lys Glu Ala Ile Thr Val Gln Gln Lys Gln Met Pro Phe Cys
                            120
Asp Lys Asp Arg Thr Leu Met Thr Pro Val Gln Asn Leu Glu Gln Ser
                        135
Tyr Met Pro Pro Asp Ser Ser Pro Glu Asn Lys Ser Leu Glu Val
                   150
                                        155
Ser Asp Thr Arg Phe His Ser Phe Ser Phe Tyr Glu Leu Lys Asn Val
                                    170
Thr Asn Asn Phe Asp Glu Arg Pro Ile Ser Val Gly Asn Lys Met
                                185
Gly Glu Gly Gly Phe Gly Val Val Tyr Lys Gly Tyr Val Asn Asn Thr
                            200
Thr Val Ala Val Lys Lys Leu Ala Ala Met Val Asp Ile Thr Thr Glu
                        215
Glu Leu Lys Gln Gln Phe Asp Gln Glu Ile Lys Val Met Ala Lys Cys
                    230
                                       235
Gln His Glu Asn Leu Val Glu Leu Leu Gly Phe Ser Ser Asp Gly Asp
                245
                                   250
Asp Leu Cys Leu Val Tyr Val Tyr Met Pro Asn Gly Ser Leu Leu Asp
                                265
Arg Leu Ser Cys Leu Asp Gly Thr Pro Pro Leu Ser Trp His Met Arg
                            280
Cys Lys Ile Ala Gln Gly Ala Ala Asn Gly Ile Asn Phe Leu His Glu
                       295
Asn His His Ile His Arg Asp Ile Lys Ser Ala Asn Ile Leu Leu Asp
                   310
                                       315
Glu Ala Phe Thr Ala Lys Ile Ser Asp Phe Gly Leu Ala Arg Ala Ser
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                                   330
Glu Lys Phe Ala Gln Thr Val Met Thr Ser Arg Ile Val Gly Thr Thr
                                345
Ala Tyr Met Ala Pro Glu Ala Leu Arg Gly Glu Ile Thr Pro Lys Ser
                            360
Asp Ile Tyr Ser Phe Gly Val Val Leu Leu Glu Ile Ile Thr Gly Leu
                       375
                                           380
Pro Ala Val Asp Glu His Arg Glu Pro Gln Leu Leu Leu Asp Ile Lys
                   390
                                       395
Glu Glu Ile Glu Asp Glu Glu Lys Thr Ile Glu Asp Tyr Ile Asp Lys
                                   410
Lys Met Asn Asp Ala Asp Ser Thr Ser Val Glu Ala Met Tyr Ser Gly
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Ala Ser Gln Cys Arg His Glu Lys Lys Asn Lys Ser Pro Asp Ile Lys
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Lys Val His Gln Leu Leu Gln Glu Met Thr Ala Ser
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<210> 29 <211> 142

<212> PRT

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Cys Gly Lys Ser Val Leu Ala Ala Glu Ala Val Arg Asp His Ser Leu
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Leu Glu Gly Cys Phe Pro Gly Gly Val His Trp Val Ser Val Gly Lys
Gln Asp Lys Ser Gly Leu Leu Met Lys Leu Gln Asn Leu Cys Thr Arg
                        55
Leu Asp Gln Asp Glu Ser Phe Ser Gln Arg Leu Pro Leu Asn Ile Glu
Glu Ala Lys Asp Arg Leu Arg Ile Leu Met Leu Arg Lys His Pro Arg
               85
                                    90
Ser Leu Leu Ile Leu Asp Asp Val Trp Asp Ser Trp Val Leu Lys Ala
                                105
Phe Asp Ser Gln Cys Gln Ile Leu Leu Thr Thr Arg Asp Lys Ser Val
                           120
Thr Asp Ser Val Met Gly Pro Lys Tyr Val Val Pro Val Glu
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                        135
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<210> 30 <211> 145 <212> PRT <213> C. elegans

<400> 30

Glu Met Cys Asp Leu Asp Ser Phe Phe Leu Phe Leu His Gly Arg Ala 10 Gly Ser Gly Lys Ser Val Ile Ala Ser Gln Ala Leu Ser Lys Ser Asp 25 Gln Leu Ile Gly Ile Asn Tyr Asp Ser Ile Val Trp Leu Lys Asp Ser 40 Gly Thr Ala Pro Lys Ser Thr Phe Asp Leu Phe Thr Asp Ile Leu Leu Met Leu Lys Ser Glu Asp Asp Leu Leu Asn Phe Pro Ser Val Glu His 75 Val Thr Ser Val Val Leu Lys Arg Met Ile Cys Asn Ala Leu Ile Asp 90 Arg Pro Asn Thr Leu Phe Val Phe Asp Asp Val Val Gln Glu Glu Thr 100 105 Ile Arg Trp Ala Gln Glu Leu Arg Leu Arg Cys Leu Val Thr Thr Arg 120 Asp Val Glu Ile Ser Asn Ala Ala Ser Gln Thr Cys Glu Phe Ile Glu 130 140 Val 145

<210> 31 <211> 75 <212> PRT <213> Homo sapien

<213> Homo sapien

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Glu Asp Leu Ala Ser Leu Lys Phe Leu Ser Leu Asp Tyr Ile Pro Gln
Arg Lys Gln Glu Pro Ile Lys Asp Ala Leu Met Leu Phe Gln Arg Leu
Gln Glu Lys Arg Met Leu Glu Glu Ser Asn Leu Ser Phe Leu Lys Glu
                         55
Leu Leu Phe Arg Ile Asn Arg Leu Asp Leu Leu
<210> 32
<211> 76
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<213> Homo sapien
<400> 32
His Leu Leu Ile Arg Val Met Leu Tyr Gln Ile Ser Glu Glu Val Ser
                                     10
Arg Ser Glu Leu Arg Ser Phe Lys Phe Leu Leu Gln Glu Glu Ile Ser
                                25
Lys Cys Lys Leu Asp Asp Asp Met Asn Leu Leu Asp Ile Phe Ile Glu
                            40
Met Glu Lys Arg Val Ile Leu Gly Glu Gly Lys Leu Asp Ile Leu Lys
Arg Val Cys Ala Gln Ile Asn Lys Ser Leu Leu Lys
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<212> PRT
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<400> 33
Lys Val Ser Phe Arg Glu Lys Leu Leu Ile Ile Asp Ser Asn Leu Gly
                                    10
Val Gln Asp Val Glu Asn Leu Lys Phe Leu Cys Ile Gly Leu Val Pro
                                25
Asn Lys Lys Leu Glu Lys Ser Ser Ser Ala Ser Asp Val Phe Glu His
Leu Leu Ala Glu Asp Leu Leu Ser Glu Glu Asp Pro Phe Phe Leu Ala
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Glu Leu Leu Tyr Ile Ile Arg Gln Lys Lys Leu Leu Gln
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<210> 34
<211> 72
<212> PRT
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Val Ser Leu Phe Arg Asn Leu Leu Tyr Glu Leu Ser Glu Gly Ile Asp
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Ser Glu Asn Leu Lys Asp Met Ile Phe Leu Leu Lys Asp Ser Leu Pro
                                25
Lys Thr Glu Met Thr Ser Leu Ser Phe Leu Ala Phe Leu Glu Lys Gln
Gly Lys Ile Asp Glu Asp Asn Leu Thr Cys Leu Glu Asp Leu Cys Lys
Thr Val Val Pro Lys Leu Leu Arg
<210> 35
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Met Asp Pro Phe Leu Val Leu Leu His Ser Val Ser Ser Ser Leu Ser
Ser Ser Glu Leu Thr Glu Leu Lys Phe Leu Cys Leu Gly Arg Val Gly
Lys Arg Lys Leu Glu Arg Val Gln Ser Gly Leu Asp Leu Phe Ser Met
Leu Leu Glu Gln Asn Asp Leu Glu Pro Gly His Thr Glu Leu Leu Arg
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Glu Leu Leu Ala Ser Leu Arg Arg His Asp Leu Leu Arg
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<210> 36
<211> 99
<212> PRT
<213> Homo sapien
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Trp Pro Glu Glu His Gly Glu Glu His Gly Leu Tyr Ser Leu His
Arg Met Phe Asp Ile Val Gly Thr His Leu Thr His Arg Asp Val Arg
Val Leu Ser Phe Leu Phe Val Asp Val Ile Asp His Glu Arg Gly Leu
                            40
Ile Arg Asn Gly Arg Asp Phe Leu Leu Ala Leu Glu Arg Gln Gly Arg
Cys Asp Glu Ser Asn Phe Arg Gln Val Leu Gln Leu Leu Arg Ile Ile
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                                        75
Thr Arg His Asp Leu Leu Pro Tyr Val Thr Leu Lys Arg Arg Ala
Val Cys Pro
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<210> 37 <211> 99

<400> 39

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 <213> Mus musculus
<400> 37
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Arg Met Phe Asp Ile Val Gly Thr His Leu Thr His Arg Asp Val Arg
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Val Leu Ser Phe Leu Phe Val Asp Val Ile Asp His Glu Arg Gly Leu
                            40
Ile Arg Asn Gly Arg Asp Phe Leu Leu Ala Leu Glu Arg Gln Gly Arg
Cys Asp Glu Ser Asn Phe Arg Gln Val Leu Gln Leu Leu Arg Ile Ile
                                         75
Thr Arg His Asp Leu Leu Pro Tyr Val Thr Leu Lys Lys Arg Arg Ala
                                     90
Val Cys Pro
<210> 38
<211> 146
<212> PRT
<213> Danio rerio
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Trp Glu Glu Thr Glu Cys Leu Ser Tyr Tyr Glu Thr Leu Ser Leu His
Glu Ile Phe Glu Ile Val Gly Ser Gln Leu Thr Glu Thr Cys Gly Gly
                                25
Glu Val Ala Phe Leu Leu Asp Glu Thr Tyr Pro Gly Lys His Pro Leu
                            40
Asp Pro Glu Gly Trp Thr Glu Asp Leu Pro Pro Gly Pro Asp Gly Ser
                        55
Pro Gln Ala Asn Thr Pro Cys Pro Arg Leu Leu Lys Ser Trp Gln Arg
                    70
Met Gln Pro Gln Lys Glu Gly Cys Ser Ile Ala Ser Arg His Arg Pro
                85
                                    90
Lys Ser Gly Val Glu Leu Leu Glu Leu Glu Arg Arg Gly Tyr Leu
                                105
Ser Asp Ala Asn Leu Arg Pro Leu Leu Gln Leu Leu Arg Ile Leu Thr
                            120
Arg His Asp Val Leu Pro Phe Val Ser Gln Lys Lys Arg Arg Thr Val
                        135
Ser Pro
145
<210> 39
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<212> PRT
<213> Homo sapien
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                                      10
 Ser Ser Glu Leu Thr Glu Leu Lys Tyr Leu Cys Leu Gly Arg Lys Arg
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 Lys Leu Glu Arg Val Gln Ser Gly Leu Asp Leu Phe Ser Met Leu Leu
                             40
 Glu Gln Asn Asp Leu Glu Pro Gly His Thr Glu Leu Leu Arg Glu Leu
Leu Ala Ser Leu Arg Arg His Asp Leu Leu Arg Arg Val Asp Asp Phe
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 Glu Leu
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atgatgctga aaggaata
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gcgaattcat gaacaaaccc ataacaccat caaca
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	223> synthetic primer	
	Sylvanotic Primer	
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		20
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	parino.	
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C	teegeegee gtetgg	16
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C	geceaggag teateggaeg e	21
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٠	220>	
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•••		
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48
48 96

35 40 45 ttg tat tct tat gaa agt caa att cct tgc gta gct aaa gaa aaa att 192 Leu Tyr Ser Tyr Glu Ser Gln Ile Pro Cys Val Ala Lys Glu Lys Ile 50 55 195 cgt Arg 65 <210> 53 <211> 65 <212> PRT <213> C. muridarum <400> 53 Asp Leu Trp Lys Gln Phe Val Phe Ala Leu Gly Val Ser Ser Glu Glu Leu Glu Ala His Glu Pro Ser Glu Ala Ala Lys Ala Lys Val Ala Thr Phe Met Arg Trp Cys Thr Gly Asp Ser Leu Ala Ala Gly Val Ala Ala Leu Tyr Ser Tyr Glu Ser Gln Ile Pro Cys Val Ala Lys Glu Lys Ile 50 55 60 Arg 65 <210> 54 <211> 711 <212> DNA <213> C. muridarum <220> <221> CDS <222> (1)...(708) <400> 54 atg gaa tca aga aaa gga ata aaa gag gtg agc atg aat ttt tta gat 48 Met Glu Ser Arg Lys Gly Ile Lys Glu Val Ser Met Asn Phe Leu Asp 1 15 cag cta gat gca att att caa aac aaa cat atg tta gaa cac cct ttt 96 Gln Leu Asp Ala Ile Ile Gln Asn Lys His Met Leu Glu His Pro Phe 20 tac atg aag tgg tca aaa gga gag ctg aca aaa gaa caa tta cag gca 144 Tyr Met Lys Trp Ser Lys Gly Glu Leu Thr Lys Glu Gln Leu Gln Ala

60

192

tac gca aaa gat tac tat ttg cat atc aaa gct ttt cca aaa tat tta

Tyr Ala Lys Asp Tyr Tyr Leu His Ile Lys Ala Phe Pro Lys Tyr Leu

tct Ser 65	gct Ala	att Ile	cat His	agc Ser	cgt Arg 70	tgt Cys	gat Asp	gat Asp	tta Leu	gaa Glu 75	gcc Ala	cgc Arg	aag Lys	tta Leu	tta Leu 80	240
tta Leu	gat Asp	aac Asn	tta Leu	atg Met 85	gat Asp	gaa Glu	gag Glu	aat Asn	ggt Gly 90	tat Tyr	cct Pro	aat Asn	cat His	att Ile 95	gat Asp	288
tta Leu	tgg Trp	aaa Lys	caa Gln 100	ttt Phe	gtg Val	ttt Phe	gct Ala	ctt Leu 105	gga Gly	gtg Val	tct Ser	tca Ser	gaa Glu 110	gag Glu	cta Leu	336
gaa Glu	gct Ala	cat His 115	gaa Glu	ccc Pro	agt Ser	gaa Glu	gca Ala 120	gct Ala	aaa Lys	gct Ala	aag Lys	gtt Val 125	gcg Ala	aca Thr	ttt Phe	384
atg Met	cgg Arg 130	tgg Trp	tgc Cys	aca Thr	GJÀ aaa	gat Asp 135	tct Ser	tta Leu	gca Ala	gca Ala	gga Gly 140	gta Val	gcg Ala	gct Ala	ttg Leu	432
tat Tyr 145	tct Ser	tat Tyr	gaa Glu	agt Ser	caa Gln 150	att Ile	cct Pro	tgc Cys	gta Val	gct Ala 155	aaa Lys	gaa Glu	aaa Lys	att Ile	cgt Arg 160	480
gga Gly	ttg Leu	att Ile	gag Glu	tac Tyr 165	ttt Phe	Gly	ttt Phe	tct Ser	aat Asn 170	cct Pro	gaa Glu	gat Asp	tat Tyr	gct Ala 175	tat Tyr	528
ttc Phe	acg Thr	gag Glu	cat His 180	gaa Glu	gaa Glu	gct Ala	gat Asp	gtg Val 185	cgt Arg	cat His	gct Ala	agg Arg	gaa Glu 190	gaa Glu	aag Lys	576
gcc Ala	tta Leu	att Ile 195	gag Glu	atg Met	ttg Leu	tct Ser	aga Arg 200	gat Asp	gat Asp	agc Ser	gac Asp	aaa Lys 205	gtt Val	tta Leu	gaa Glu	624
gct Ala	tcg Ser 210	cga Arg	gaa Glu	gtt Val	aca Thr	caa Gln 215	tct Ser	tta Leu	tac Tyr	ggc Gly	ttt Phe 220	ttg Leu	gat Asp	tca Ser	ttt Phe	672
tta Leu 225	gag Glu	cct Pro	gca Ala	aca Thr	tgt Cys 230	tgt Cys	cat His	tgt Cys	cac His	aaa Lys 235	gct Ala	taa				711

<210> 55 <211> 236 <212> PRT

<213> C. muridarum

<400> 55

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Tyr Met Lys Trp Ser Lys Gly Glu Leu Thr Lys Glu Gln Leu Gln Ala
                 •
                           40
Tyr Ala Lys Asp Tyr Tyr Leu His Ile Lys Ala Phe Pro Lys Tyr Leu
                        55
Ser Ala Ile His Ser Arg Cys Asp Asp Leu Glu Ala Arg Lys Leu Leu
Leu Asp Asn Leu Met Asp Glu Glu Asn Gly Tyr Pro Asn His Ile Asp
                85
                                    90
Leu Trp Lys Gln Phe Val Phe Ala Leu Gly Val Ser Ser Glu Glu Leu
                                105
Glu Ala His Glu Pro Ser Glu Ala Ala Lys Ala Lys Val Ala Thr Phe
                            120
Met Arg Trp Cys Thr Gly Asp Ser Leu Ala Ala Gly Val Ala Ala Leu
                        135
Tyr Ser Tyr Glu Ser Gln Ile Pro Cys Val Ala Lys Glu Lys Ile Arg
                    150
                                        155
Gly Leu Ile Glu Tyr Phe Gly Phe Ser Asn Pro Glu Asp Tyr Ala Tyr
                165
                                    170
Phe Thr Glu His Glu Glu Ala Asp Val Arg His Ala Arg Glu Glu Lys
                                185
Ala Leu Ile Glu Met Leu Ser Arg Asp Asp Ser Asp Lys Val Leu Glu
                            200
Ala Ser Arg Glu Val Thr Gln Ser Leu Tyr Gly Phe Leu Asp Ser Phe
                        215
Leu Glu Pro Ala Thr Cys Cys His Cys His Lys Ala
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<211> 65
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<213> C. pneumoniae
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Leu Ala Asn His Glu Phe Ser Gln Ala Ala Gln Asp Met Val Ala Thr
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Phe Arg Arg Leu Cys Asp Met Pro Gln Leu Ala Val Gly Leu Gly Ala
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Leu Tyr Thr Tyr Glu Ile Gln Ile Pro Gln Val Cys Val Glu Lys Ile
Arg
65
<210> 57
<211> 224
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Lys Gln Gln Leu Gln Ala Tyr Ala Lys Asp Tyr Tyr Leu His Ile Lys
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Ala Phe Pro Cys Tyr Leu Ser Ala Leu His Ala Arg Cys Asp Asp Leu
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Gln Ile Arg Arg Gln Ile Leu Glu Asn Leu Met Asp Glu Glu Ala Gly
Asn Pro Asn His Ile Asp Leu Trp Arg Gln Phe Ala Leu Ser Leu Gly
                                    90
Val Ser Glu Glu Glu Leu Ala Asn His Glu Phe Ser Gln Ala Ala Gln
                                105
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Cys Val Glu Lys Ile Arg Gly Leu Lys Glu Tyr Phe Gly Val Ser Ala
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Arg Gly Tyr Ala Tyr Phe Thr Val His Gln Glu Ala Asp Ile Lys His
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Ala Ser Glu Glu Lys Glu Met Leu Gln Thr Leu Val Gly Arg Glu Asn
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